

WHAT IS CLAIMED IS:

1. A gradient material molded body comprising:

a core; and

an outer shell,

said gradient material molded body being provided close to a final contour of a finished component, and not as a semi-finished component, through continuous casting from a metal alloy solidified in said outer shell of the molded body outside of thermodynamic equilibrium,

the metal alloy being solidified in the core stably, and the metal alloy being chilled in said outer shell in its crystal lattice by rapid cooling.

2. The gradient material molded body of claim 1 wherein the metal alloy is a casting alloy.
3. The gradient material molded body of claim 2 wherein the metal alloy is not a wrought alloy.
4. The gradient material molded body of claim 1 wherein the metal alloy is a casting iron alloy.
5. The gradient material molded body of claim 1 wherein the metal alloy is a tool steel alloy having a carbon content of at least 0.8 to at most 1.5% in the mean, and a chromium content of at least 5 and at most 12%, and contains at least one of the elements vanadium, molybdenum and tungsten as a further alloying element, wherein the vanadium content is at most 10%, the molybdenum content is at most 1.5% and the tungsten content is at most 1%, the contents each measured by weight.
6. The gradient material molded body of claim 1 wherein the molded body is a functional component for a processing machine.

7. The gradient material molded body of claim 1 wherein the molded body is a roll barrel for processing a web-shaped material.
8. The gradient material molded body of claim 1 wherein the outer shell exhibits a thickness between 1 % and 20% of the mean distance between the surface of the shell and a central longitudinal axis of the molded body.
9. The gradient material molded body of claim 1 wherein a white-solidified iron base alloy forms the outer shell.
10. The gradient material molded body of claim 1 wherein the molded body is cast from a single metal alloy.
11. The gradient material molded body of claim 10, wherein the metal alloy is an iron base alloy.
12. The gradient material molded body of claim 1 wherein the molded body is a compound molded body having fibers extending in the casting direction of the molded body and cast-in by the metal alloy.
13. The gradient material molded body of claim 1 wherein said gradient material molded body is an abrasion-proof casting body for at least one of milling, grinding, or chafing.
14. The gradient material molded body of claim 6 wherein the functional component is a cylindrical rotating body.